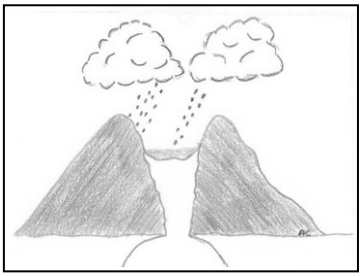
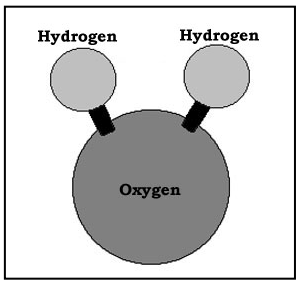
Chapter Summaries

Each chapter contains a Summary, "Quiz Yourself" questions, a vocabulary list and a word exercise, and experiments to help reinforce the concepts discussed in the chapter.



Chapter 1: How Our Lakes Were Formed (NEW CHAPTER!)

This chapter explores different activities, natural or anthropogenic, that led to the formation of many of the world's lakes. Students will learn new vocabulary words, such as caldera, esker, and morphology. There is a crossword puzzle in the appendix to help the students learn vocabulary words.

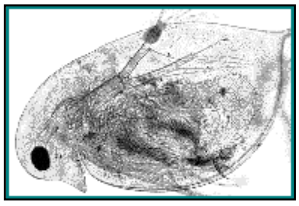


Chapter 2: Water Properties

General water properties are explored in Chapter 2 and include explanations of the three states of water, surface tension, and specific heat. This chapter also contains detailed explanations of a lake's water properties, such as thermal layers and lake turnover. A fill-in-the-blank exercise in the appendix reinforces vocabulary, and the students can demonstrate different properties of water by completing four experiments.

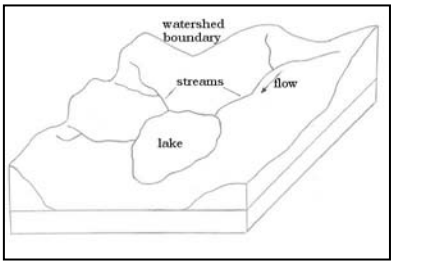
Chapter 3: Water Cycle

In Chapter 3, students learn about the water cycle and ways in which it relates to lake ecology. They learn about water inputs and outputs, groundwater, runoff, and different types of water use. Students will have fun trying the word-find puzzle in the appendix and making their own water cycle.



Chapter 4: Food Chain

This chapter describes lake food chains, introducing students to phytoplankton, zooplankton, and different nutrients in the water that are essential for a lake's ecology. Vocabulary words include consumers, producers, herbivores, and photosynthesis. There is a fill-in-the-blank exercise and three experiments to help the students learn these concepts.



Chapter 5: Watersheds

Students learn about the area of land that drains into a body of water and how some land use activities affect lake quality. The students learn vocabulary such as algal bloom, clear-cutting, and topographic map. A fill-in-the-blank exercise and two experiments will help to emphasize the major focus of the chapter.

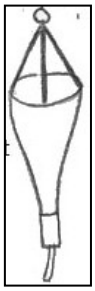
Chapter 6: Pollution

This chapter is a detailed description of various types of pollution. Students learn about acid rain, point and nonpoint sources of pollution, and other ways lakes can be polluted. A fill-in-the-blank exercise and three experiments will make the students think more deeply about pollution issues.

Chapter 7: Non-Native Species (NEW CHAPTER!)

Chapter 7 discusses an issue of great concern to many limnologists throughout the world: non-native and invasive species. Students learn about specific plants and animals that are wreaking havoc on our lakes and ponds. Vocabulary words include predators, purple loosestrife, zebra mussel, and competitive feeder. A crossword puzzle and two experiments help the students better understand one of the "hottest" lake management issues today.

Chapter 8: Testing a Lake



This chapter provides a glimpse of the tools that limnologists use to determine lake quality. Devices such as a Kemmerer bottle, Secchi disk, and fathometer are discussed. A crossword puzzle and an experiment help to emphasize these concepts.

Chapter 9: Classifying Lakes

The final chapter describes how limnologists use certain data to determine lake health. They learn how lakes are classified, as well as how to analyze data using graphics. An exercise and three case studies expose students to parameters that limnologists use when determining lake classification.